but the destruction of T C showed a remarkable effect to tremor and rigidity, except a slight amyotonia and occurrence of many relapses during 2 weeks after operation.

On the contrary, the destruction of ventrolateral thalamic nucleus had no side effects, remarkable effects to tremor and rigidity, and no relapse cases after discharge. The late results are studying at present and will be reported.

On the basis of our research conditions, the results of stereotaxic operation to Parkinsonism are not enough to be satisfactory for us, but it might be hoped if this operation were skillfully performed with drug therapies.

116. Inhibition of Experimental Tremor Induced by Perphenazine in Cats: Preliminary Report

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The tremor can be produced in animals by electrical stimulation or destruction of certain encephalic structures and by administration of some drugs. It is reported by many authors that extrapyramidal syndrome was sometimes seen clinically during the therapeutic administration of phenothiazine derivatives.

The single oral dose of 2.5~7.0 mg/kg of perphenazine was administered daily in 34 cats and tremor, muscle rigor, restlessness, swimming movement etc. were induced in the second or third day. Doses below 2.5 mg/kg and above 7.0 mg/kg were ineffective. Tremor were investigated with the naked eye and recorded by means of electromyography and photoconductive cell. Tremor at rest of either 9~12 c/s or 17~20 c/s in frequency was observed. Sometimes, tremor of both frequencies was observed in one and the same cat.

The isolated electrode was stereotaxically implanted in the pallidum or in various parts of the thalamus. A week after the implantation of electrode, it was examined that perphenazine could surely induced the tremor and localized electrolysis was made. Two weeks after the electrolysis, it was examined if the lesion could inhibit the induction of tremor or not, and the histological studies of the brain were performed.

The lesions which effectively prevented the appearance of tremor were as follows: a large part of bilateral pallidum in 4 cases, unilateral pallidum in 2 cases, bilateral ventrolateral thalamic area in 3 cases and intralaminar system of the thalamus in 3 cases. The lesions which markedly diminished the tremor were as follows: bilateral anterior medialis, lateralis dorsalis and lateralis posterior

nuclei in 5 cases and midline portion of the thalamus in unilateral side in 5 cases. The lesions which failed to inhibit the tremor were as follows: posterior nuclei of the thalamus and a small part of unilateral pallidum in 12 cases.

117. Effects of Thalamic Stimulations before Destroying the Selected Regions in Stereotaxic Surgery

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Electrical stimulations in the course of stereotaxic operations have been used by many authors. These reports indicate that although electrical stimulations are absolutely necessary before destruction of target points beside X-ray check up, the effects of such stimulations are extremely varied.

We have endeavored to produce the same involuntary movements as the patients complain by electric stimulation before destroying the selected region in the treatment of extrapyramidal disorders. Two steel wires, each being 0.3 mm in diameter and isolated only at the tip and the distance between both tips being 2 mm, were inserted into the target points through the syringe needle through which oil-wax were injected. They were used for bipolar stimulations. Rectangular current pulses (Strength: 5 to 15 V., Duration: 1.0 millisecond, Frequency: 1-100 per second) were passed through the electrode. EMG was recorded by surface electrodes at the muscles in which clinical manifestations were predominant.

In all cases in which the same motor phenomena, such as tremor, spasmodic torticollis, jerking and rigidity which were chief complaints in patients, were evoked from a small limited portion by these electrical stimulations, marked improvement was obtained after operations. On the contrary, good results were not obtained in cases in which such a movement was not produced by electric stimulations, even if electrodes had been inserted into the target point anatomically. It is, therefore, our opinion that excellent results will be obtained only by destruction of such a region from which the same involuntary movements as the patients complain are produced by electric stimulations.